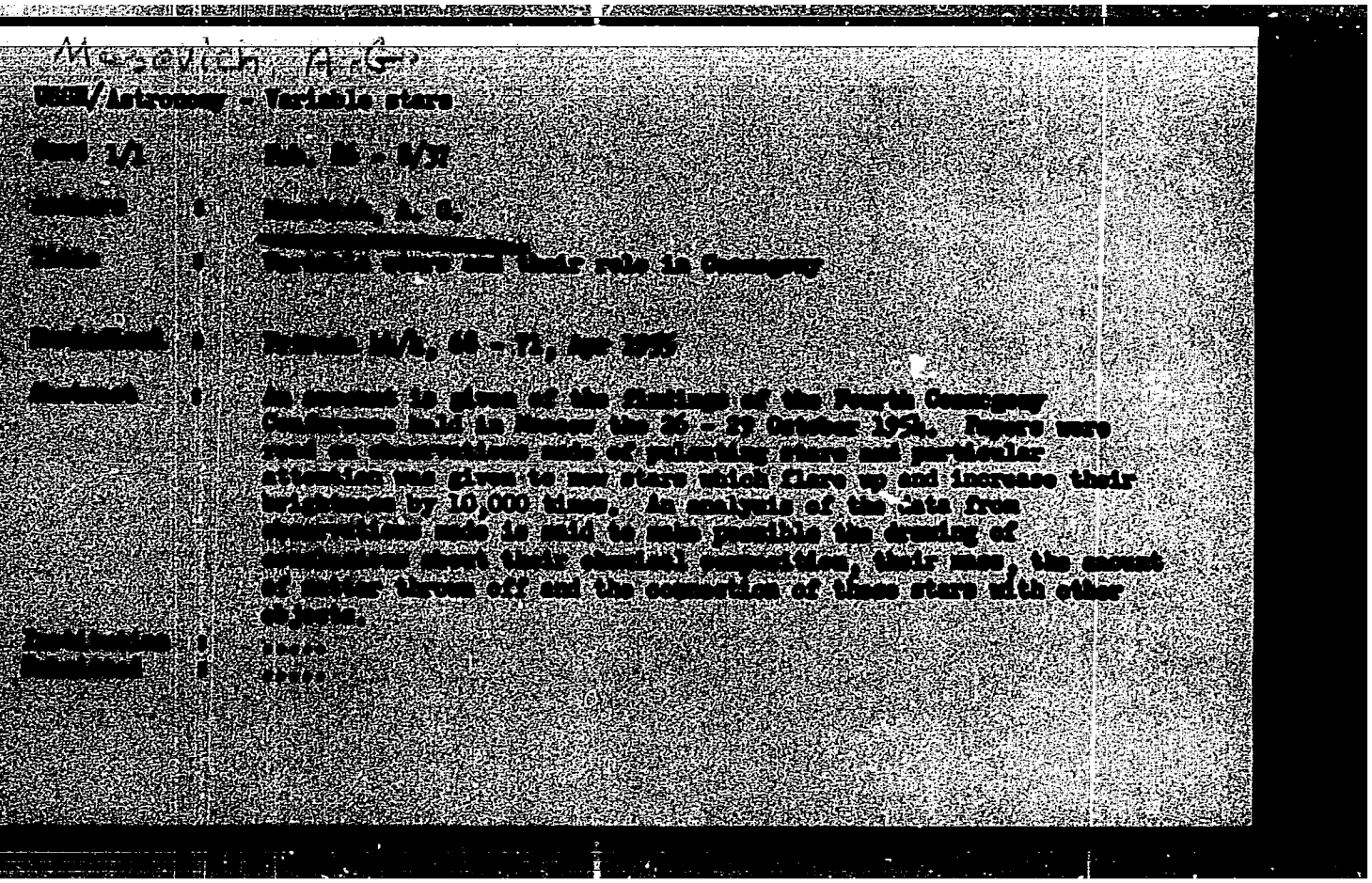
MASEVICH, A.G.

Evolution of early-type stars. Astron. zhur. 32 no.6:498-502 N-D '55. (MLRA 9:2)

1.Gosudarstvennyy astronomicheskiy institut imeni P.K.Shternberga. (Stars)



MASEVICH, A.G.

On a visit with India's scientists. Priroda 44 no.6:57-62 Je '55.
(India--Scientists--Congresses) (MLRA 8:7)

BAKULIN, P.I., otvetstvennyy redaktor; DUBROVSKIY, K.K., redaktor [deceased]; KULAGIN, S.G., redaktor; MASEVICH, A.G., redaktor; PARENAGO, P.P., redaktor; RAKHLIN, I.Ye., redaktor; MURASHOVA, N.Ya., tekhnicheskiy redaktor

[Astronomical calender. Yearbook. Variable section for 1957] Astronomicheskii kalendar'. Ezhegodnik. Peremennaia chast' 1957. Red. kollegiia P.I.Bakulin i dr. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 288 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo. no.60) (MLRA 10:3)
(Astronomy--Yearbooks)

MASHKOVICH, A.G.

Luminosity function of main sequence stars and its interpretation.
Astron.zhur. 33 no.2:216-221 Mr-Ap '56. (MLRA 9:8)

1. Gosudarstvennyy astronomicheskiy institut imeni P.K. Shternberga.
(Stars--Radiation)

MASEVICH, A.G.

Subgiants and their relation to main sequence stars. Astron.zhur.33 no.3:330-339 My-Je '56. (MLRA 9:10)

1.Gosudarstvennyy astronomicheskiy institut imeni P.K.Shternberga.
(Stars--Classification)

MASHVICH, A.G.

Evolution of stars in the Hyades cluster. Astron. zhur. 33 no.4:576-578 Jl - Ag '56. (MLRA 9:11)

1. Gosudarstvennyy astronomicheskiy institut imeni P. K. Shternberga.
(Stars--Clusters)

MASEVICH, A.G.

Possible courses of continuous evolution of main sequence stars with constant and varying masses taking into consideration various. Soob. GAISH no.99:3-32 '56. (MLRA 10:3)
(Stars--Constitution)

BAKULIN, P.I., otvetstvennyy red.; KULAGIN, S.G., red.; MASEVICH [redacted], red. PARENAGO, P.P., red.; BAKHLIN, I.Ye., red.; AKHLAMOV, S.N., tekhn.red.

[Astronomical calendar; a yearbook. Variable section, 1958] Astronomicheskii kalendar'; Ezhegodnik. Peremennaia chast', 1958. Red.kollegiia P.I.Bakulin.i dr. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1957. 303 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo, no.61) (MIRA 11:2)
(Astronomy--Yearbooks)

MASEVICH, A.G., red.

[Nuclear processes in stars; collected reports read at the Fifth International Colloquium on Astrophysics held in Liege, on September 10, 11, and 12 of 1953] IAdernye protsessy v zvezdakh; sbornik dokladov, prochitannykh na piatom Mezhdunarodnom kollokviume po astrofizike v L'ezhe 10, 11 i 12 sentiabria 1953 goda. Pod red. A.G.Masevich. Moskva, Izd-vo inostr.lit-ry, 1957. 422 p. (MIRA 14:12)

1. Colloque International D'astrophysique. 5th, Liege, 1953.
(Astrophysics—Congresses)

MASEVICH, A. B

"Preparation for Visual Observation of Artificial Earth Satellites," a paper presented at the 8th International Astronautical Congress, 6-12 Oct 1957, Barcelona.

MASEVICH, A.G.

Evolution of stars in open clusters and stellar associations [with summary in German]. Vop. kosm. 5:56-83 '57. (MLR 10:8)
(Stars--Clusters)

MASEVICH, A.G.

Empirical main sequence and its theoretical interpretation [with summary in English]. Vop. kosm. 5 140-180 '57. (MLRA 10:8)
(Stars)

MASEVICH, A.G.

MASEVICH, A.G., kandidat fiziko-matematicheskikh nauk.

The physics of planetary nebulae; conference of the Commission on Cosmogony. Vest.AN SSSR 27 no.4:119-120 Ap '57. (MLRA 10:5)
(Nebulae)

30-8-22/37

AUTHOR: Masevich, A.G.

TITLE: On Outergalactic Astronomy and Cosmology (Vnegalakticheskaya astronomiya i kosmologiya)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1957, Vol.27, Nr 8, pp.94-96 (USSR)

ABSTRACT: The meeting which took place in Moscow from June 5th to June 7th was devoted to the problems of the above mentioned astronomy and cosmology. In his report V.A. Ambartsumiyan gave interesting details on this relatively new branch of science. Observations proved the assumption that stellar fogs are not evenly distributed; there are dense parts and accumulations which may be called "light cloud formations". In spite of this, theoretical research is based upon the assumption that the distribution of luminescent cosmic fog is of uniform character. The reviewer further remarked that already now there is no doubt that an expansion of the universe exists. Another reviewer contributed interesting observation results with respect to spiral fogs. The assumption hitherto held that the spiral fog tails are rotating solar systems is said to have been disproved.

Card 1/2

30-8-22/37

On Outergalactic Astronomy and Cosmology

A.L. Zelmanova gave a report on the relativity theory of the anisotropic heterogeneity of the universe. Some reviewers dealt with the problems of the thermodynamics of the universe and a discussion took place on the so-called fluctuation hypothesis. In conclusion a discussion on general problems of cosmology took place.

AVAILABLE: Library of Congress

Card 2/2

Masevich, A.G.

30-11-23/23

AUTHOR: Masevich, A. G.

TITLE: The Problem of Cosmic Gasdynamics.
An International Conference in the USA.
(Problemy kosmicheskoy gazodinamiki.
Mezhdunarodnaya konferentsiya v SShA.)

PERIODICAL: Vestnik AN SSSR, 1957, Vol. 27, Nr 11, pp. 140-143 (USSR)

ABSTRACT: The physicists' interest in these problems has constantly increased, as the problem of the acceleration of cosmic rays and their lives in the space of the galactic system, as well as the investigation of the formation of interastral magnetic fields is closely connected with the motion of the so-called interastral gases. Representatives of astronomy, physics and mechanics met in Cambridge (Kembridzhe), USA; this was the third international symposium devoted to problems of cosmic aerodynamics. The report by the Dutchman Van der Kholst (observations of the radioemission on the 21 cm wave) caused great interest. G. Vokuler (USA) reported on the observations made in Australia of the spiral structure of the galactic system. O. Vilson (USA) dealt with the new research data regarding the inner kinetics of the planetary nebulae, G. Myunkh (USA) with the internal motions in the nebula of Orion,

Card 1/3

30-11-23/23

The Problem of Cosmic Gasdynamics.

R. Minkovskiy (USA) reported on the investigation of the group of fiber-like nebulae in the Swan, R. Devis (England) thoroughly examined the physical conditions in the gas-dust clouds on the basis of the most recent results of the observation of radio-radiation. Much attention in reports and discussions was paid to the problem of the dissipation of energy. Kh. Petchek (USA), L. Birman and A. Shlyuter (German Federal Republic - FRG) talked on this topic. Some speakers dealt with the nature of the magnetic field of the spiral extensions of the galactic system. Very great attention was paid by the conference to the problem of the gas-corona and of the formation of the radio-radiation (S.B. Pikel'ner). V.A. Ambartsumyan talked on the genetic connection of young stars with the diffuse environment. By means of observations made he rejected the hitherto existing assumptions with regard to the formation of the stars from an interastral substance. The members of the soviet delegation made themselves acquainted with the institutions and the organization of the optical observations of artificial earth satellites in the USA. The delegation visited the astrophysical observatory in Cambridge (Massachusetts) and a number of other scientific institutions in the USA. Then the

Card 2/3

30-11-23/23

The Problem of Cosmic Gasdynamics.

report deals with the details of the optical observations of the artificail earth satellites in the USA. The delegation showed great interest for the organization and equipment of the Massachusetts Institute of Technology.

AVAILABLE: Library of Congress

Card 3/3

AUTHOR: Masevich, A. G.

TITLE: The evolution of stars in the χ and h Per cluster. (Evolyutsiya zvezd v skoplenii χ i h perseya.)

PERIODICAL: "Astronomicheskiy Zhurnal" (Journal of Astronomy), 1957, Vol.34, No.2, pp. 176-182 (USSR).

ABSTRACT: The H - R diagrams for the nucleus and the surrounding association of the double cluster of χ and h Per show marked differences. Fig.1 shows the H-R diagram for the nucleus of the above double cluster and Fig.2 the H - R diagram for the association of the double cluster. (● - stars of the main sequence, O - weak supergiants, □ - bright supergiants. From the data of Johnson and Hiltner (1)). The diagram for the nucleus is similar to the usual diagram for a cluster of an early spectral type. The characteristic difference between this diagram and the diagram for the association (Fig.2) is the presence in the latter of stars of the main sequence of the earliest spectral types (O5 - B0), which lie on the undeviated (primary) upper branch of the main sequence. A further difference is in the interval between the primary branch and the branches deviated from it. The disposition of the supergiants in Fig.2 is reminiscent

The evolution of stars in the χ and h Per cluster. (Cont.)

of the evolutionary curves of gravitationally contracting stars (2). This is further emphasized by the presence in Fig.2 of a few O - stars situated under the main sequence. For massive stars, such as the supergiants considered here, such an evolution takes place very quickly (in any case a time less than 10^6 years is required). A comparative study of the H - R diagrams of the double cluster leads to the conclusion that the age of the nucleus and the association is roughly the same, but while in the association the process of star-formation continues, it has ceased altogether in the nucleus. The deviation of the brightest stars in clusters from the mean line of the main sequence is usually taken to be the result of the evolution of these stars when heterogeneity in the chemical composition first begins as a result of the absence of intermixing of matter between the radiant envelope and convective nucleus (3, 4). The so-called "primary" main sequence can be found theoretically in two ways. The first method (evolution of stars occurs at constant mass with no intermixing) was given by Johnson and Hiltner (1 and 5). The primary theoretical main sequence as calculated by them is

shown in Fig.3 (dashed line). The second method was used by the present author and is described in Refs. 3 and 6. The full line of Fig.3 shows the result of these calculations (absorption law: chemical composition corresponding to that of the sun; energy source: the hydrogen-nitrogen cycle). The results of calculation of evolutionary curves (no intermixing; variable mass) are given in the table on p.180. (Nucleus: first line of numbers. Association: last two lines. First column shows the star under consideration). Further details are given in Ref.8. As can be seen the age t is higher by one order for the nucleus. The above conclusions are in agreement with Oort's theory (11) on the formation of expanding O - associations. It is argued that Münch's paper on the age of early type supergiants leaves out at least one important consideration. A star of the main sequence can only change into a bright giant of an early spectral type if in it intermixing does not take place, i.e. hydrogen burns out only in the convective nucleus which includes about 0.1 of the mass of the star. A star having the mass 20 $M_\odot$ will reach this stage in $\simeq 2 \times 10^6$ years. After this,

The evolution of stars in the χ and h Per cluster. (Cont.)

the "peaceful" evolution of the star ends and it either undergoes a catastrophe or, if its development continues with a contracting nucleus, it will become a red giant. In either case the result will not be a supergiant of an early type. In order that the stars considered by Munch (12) should have an age of $\simeq 2 \times 10^7$ years their mass must be of the order of $200 \div 300\ M_\odot$. It is suggested that the supergiants considered by Munch have an age $\sim 10^6$ years, but they were formed not in the galactic plane but at larger latitudes. 3 figures, 1 table, 12 references, 4 of which are Russian.

State Astronomy Institute
imeni P. K. Shternberg.

Recd. Oct. 15, 1956.

AUTHOR: Masevich, A.

TITLE: A meeting of the Committee for Cosmogony devoted to the development of work on cosmology. (Soveshchaniye komissii po kosmogonii, posvyashchennoye nerspektivam razvitiya rabot po kosmologii).

PERIODICAL: "Astronomicheskiy Zhurnal" (Journal of Astronomy), 1957, Vol.34, No.2, pp. 311-312.

ABSTRACT: Representatives of astronomical, physical and philosophical institutions in Moscow and other towns were present. V. A. Ambartsumyan noted that not enough attention was given in the U.S.S.R. to the problems of cosmology while a large number of papers has appeared in this field in other countries. He suggested a series of problems that could be tackled. A. L. El'manov also noted insufficient attention paid in the U.S.S.R. to non-relativistic cosmology. In the exposition of a whole series of cosmological aspects, in particular, those that have ideological implications, it is necessary to exclude simplifications and dogmatism. Possible fields of research (origin of chemical elements, radioastronomy, applications of thermodynamics and statistical physics etc.) were suggested by other members. A conference is to be called in 1957 on the problems of cosmogony. It will be devoted to extragalactic astronomy and cosmology. An approach has been made to the "Uspekhi

A meeting of the Committee for Cosmogony devoted to the development of work on cosmology. (Cont.)

Fizicheskikh Nauk" and "Voprosy Kosmogonii" to publish review articles on extragalactic astronomy and cosmology. Translations of the appropriate foreign books will be carried out.

Recd. Feb. 23, 1957.

MASEVICH, A.G

AUTHOR: Nikol'skiy, G.M. and Masevich, A.G. 33-3-27/32

TITLE: Comments by Nikol'skiy on the paper by A.G. Masevich "Luminosity function for stars of the main sequence" and author's reply.

PERIODICAL: "Astronomicheskiy Zhurnal" (Journal of Astronomy), 1957, Vol.34, No.3, pp. 493-494 (U.S.S.R.)

ABSTRACT: A.G. Masevich (1) considers the important problem of the evolution of stars of the main sequence. The analysis of this problem is carried out by him in the following way:

Suppose that stars are formed continuously and n stars per second enter the main sequence at the point M_0 (absolute stellar magnitude). Evolution takes place in the same way for all stars which move down the main sequence. If t is the time of evolution of a star from the point M_0 to the point M (see formula 7 in (1))- then:

$$nt = N \int_{M_0}^{M} \varphi(M)dM$$

Card 1/4

where $\varphi(M)$ is the luminosity function observed at the pres-

Comments by Nikol'skiy on the paper by A.G. Masevich "Luminosity function for stars of the main sequence" and author's reply. (Cont.)

of the second type (M_0 greater than M , dM negative) Masevich used the limits of the integral in eq. (1) incorrectly and hence his conclusions are invalidated by this mathematical error. n is always positive. There are two Slavic references.

AUTHOR'S REPLY

Nikolskiy's article is based on a misunderstanding. It is well known that in all the possible cases of evolution of stars at constant mass, the luminosity and the radius of the star increase. Since the mass is constant, it follows that, after a time, the star ceases to obey the mass-luminosity and the mass-radius relations characteristic of the main sequence and hence 'leaves' the latter. This was considered in detail in (2) and (3) and is not, and cannot be, a consequence of eq. (2) in Nikolskiy's note. It is surprising that Nikolskiy should quote (2) since this work, although printed, has not been issued and is still being stored by the publishers. Conversely, the result obtained in a discussion of evolution at constant mass in (1) without the transposition of the limits of integration in (1) is treated (perhaps not very successfully) simply as a

33-3-27/32

Comments by Nikol'skiy on the paper by A.G. Masevich "Luminosity function for stars of the main sequence" and author's reply. (Cont.)

mathematical expression of known facts and could be omitted without effect on the conclusions that follow.

The choice between the two alternative evolutionary hypotheses using the luminosity function is based in (1) not on the sign of n but on its magnitude (n is the number of stars being formed and is necessarily positive). Nikolskiy's criticism is thus rejected and the conclusions reached in (1) .

There are 4 Slavic references.

AVAILABLE: Library of Congress

Card 4/4

MASEVICH A.

33-5-6/12

AUTHOR: Ruben, G. and Masevich, A.

TITLE: An Investigation of Evolutionary Sequences of Homogeneous Stellar Models with a Convective Nucleus. (Issledovaniye Evolyutsionnykh Posledovatel'nostey Odnorodnykh Zvezdnykh Modeley s Konvektivnym Yadrom.)

PERIODICAL: Astronomicheskiy Zhurnal, 1957, Vol.34, No.5, pp. 724-738 (USSR).

ABSTRACT: A detailed calculation using the stellar model with a convective nucleus and the absorption law $K = K_0 \rho^{0.875} T^{-3.5}$ has been carried out by one of the present authors in Refs. 1 and 2. Possible ways of developing this model in the case of homogeneous and inhomogeneous chemical composition were considered in application to stars of the main sequence. In the present work the possibility of an application of such a model to the problem of structure and evolution of stars of other sequences in Russell's diagram is considered. The authors start with a model having the same chemical composition in both the shell and the convective nucleus. The carbon cyclic reaction is taken as the source of energy according to $\varepsilon = \varepsilon_0 XZ\rho T^n$. The continuous evolution (as a result of gradual transformation of hydrogen into helium) of such a model is considered

Card 1/4

33-5-6/12

An Investigation of Evolutionary Sequences of Homogeneous Stellar Models with a Convective Nucleus.

in the case of constant and variable mass. Using the notation of References 1 and 2 the relation between the luminosity L_1 and the stellar mass M_1 is written in the form $L_1 = M_1^{\gamma}$. Figure 1 shows the calculated dependence of $\lg L_1$ on $\lg R_1$ for different values of γ where R_1 is the relative radius. The relation between these two quantities is linear. An analysis is given of the effect of different parameters on the form of evolutionary curves. Various possible laws of change of mass are considered (different γ in Ref. 5). In each of the models there is a limiting value of γ which depends on the form of the law of formation of energy but is almost independent of the model itself. Within the limits of each possible γ there are certain maximum values of M_0 and R_0 the absolute magnitude of which depends on the accepted model. It is shown that the theoretical curve corresponding to $\gamma = 3.9$ represents the main sequence quite well. Using other values of γ one obtains evolutionary sequences which do not correspond to real stellar sequences for which the mass is a function

Card 2/4

33-5-6/12

An Investigation of Evolutionary Sequences of Homogeneous Stellar Models with a Convective Nucleus.

of both the luminosity and radius. In the case of $\gamma = 3.9$ both M_0 and R_0 reach their maximum values at the same value of Z, where Z is the content of elements heavier than helium. Using results obtained for $\gamma \neq 3.9$ it is shown that the structure and evolution of a sub-dwarfs can be explained by the present model if one assumes that the amount of heavy elements in them is about 20 times less than in stars of the main sequence. Theoretically possible masses of such stars are comparable with the masses of real sub-dwarfs. On the other hand sub-giants can be explained on this model if one assumes that the amount of heavy elements in this group is four to five times higher than in the stars of the main sequence. This is in agreement with results obtained earlier (Ref. 5). It is pointed out that although it is possible to explain the structure of both sub-dwarfs and sub-giants on the above model using certain assumptions as to the heavy element content relative to the stars of the main sequence it must nevertheless be remembered that the necessary condition in all the calculations is full inter-mixing (same chemical composition in shell and nucleus) which in general may not be observed. There are 11 figures,

Card 3/4

33-5-6/12

An Investigation of Evolutionary Sequences of Homogeneous Stellar Models with a Convective Nucleus.

8 tables, 5 references, all of which are Slavic.

SUBMITTED: April, 12, 1957.

ASSOCIATION: State Astronomical Institute, imeni P.K. Shternberg, Potsdam Astronomical Observatory, German Democratic Republic. (Gos. Astronomicheskiy In-t im. P.K. Shternberga, Potsdamskaya Astronomicheskaya Observatoriya, Germanskaya Demokraticheskaya Respublika.)

AVAILABLE: Library of Congress.

Card 4/4

MASEVICH, A.G.

Journey of Soviet astronomers to the United States. Astron.tsir. no.184:24-26 S '57. (MIRA 11:4)
(Russia--Relations (General) With United States)
(United States--Relations (General) With Russia)

GINDIN, Ye.Z.; LEYKIN, G.A.; LOZINSKIY, A.M.; [illegible]; AL'PERT, Ya.L.; CHUDESENKO, E.F.; SHAPIRO, B.S.; GAIKIN, A.M.; GORLOV, O.G.; KOTOVA, A.P.; KOSOV, I.I.; PETROV, A.V.; SEDOV, A.D.; CHERNOV, V.N.; YAKOVLEV, V.I.; MIKHAYLOV, A.A., otvetstvennyy red.; BEN'KOVA, N.P., doktor fiz.-mat. nauk, otvetstvennyy red.; SILKIN, B.I., red.; PODOL'SKIY, A.D., red.; PRUSAKOVA, T.A., tekhn. red.

[Preliminary results of the scientific research on the first Soviet artificial earth satellites and rockets; collection of articles in the 11th section of the IGY program (rockets and satellites)] Predvaritel'nye itogi nauchnyykh issledovanii s pomoshch'iu pervykh sovetskikh iskusstvennykh sputnikov zemli i raket; sbornik statei (XI razdel programmy MGG - rakety i sputniki). Moskva, Izd-vo Akad. nauk SSSR, No.1. 1958. 148 p. (MIRA 11:10)

1. Russia (1923- U.S.S.R.) Mezhduvedomstvennyy komitet po provedeniyu Mezhdunarodnogo geofizicheskogo goda. 2. Chlen-korrespondent AN SSSR (for Mikhaylov).
(Atmosphere, Upper—Rocket observations)
(Artificial satellites)

MASEVICH A.G.

X GENERAL ASSEMBLY OF THE INTERNATIONAL ASTRONOMICAL UNION
Moscow 12-20 Aug 58
Symposium on the Hertzsprung-Russell Diagram

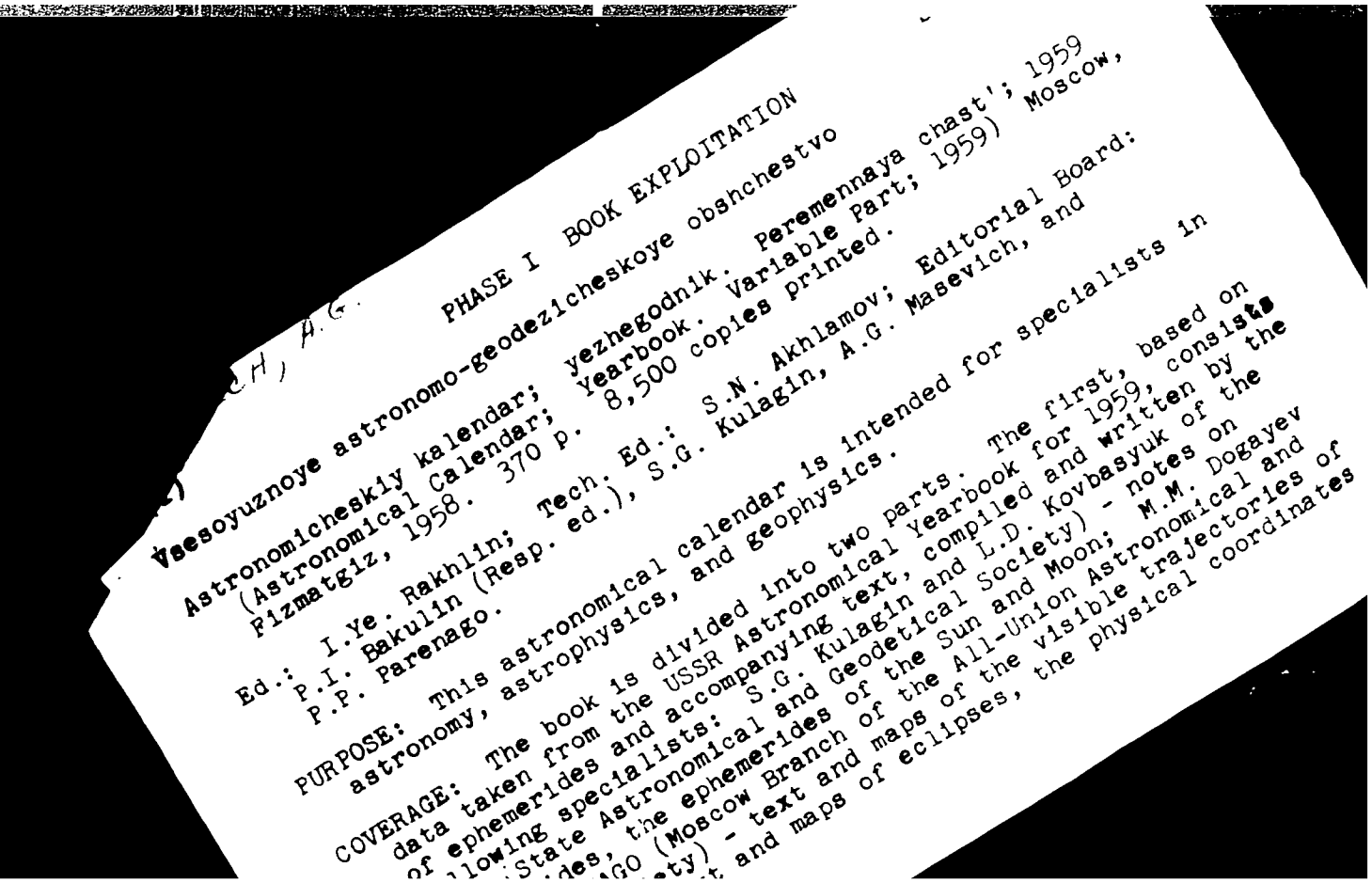
EVOLUTION OF STARS DECREASING IN MASS

A.G. Masevitch

By a "steady" evolution of a star is understood such a change of its main parameters in the flow of time, which occurs in the range of an assumed equilibrium model and is caused by regular interior processes. So, for instance, the gradual conversion of hydrogen into helium in the convective core of a star, whose substance is not mixed fully, leads to a continuous change of its luminosity, radius, Te and c, convective core dimensions. However, all these changes occur all the time in the limits of the model's state of equilibrium, and the structure of the star (radiative envelope and convective core) remains unchanged until a certain limit is reached in the ratio

$$\frac{M_{core}}{M_{envelope}} = \gamma_{crit} \qquad /1,2,3/$$

After the value $\gamma_{crit.}$, corresponding to the almost full exhaustion of hydrogen X in the convective core, is reached, further "steady" evolution becomes impossible, since for the further decrease of X in the range of the assumed model there are no



PHASE I BOOK EXPLOITATION

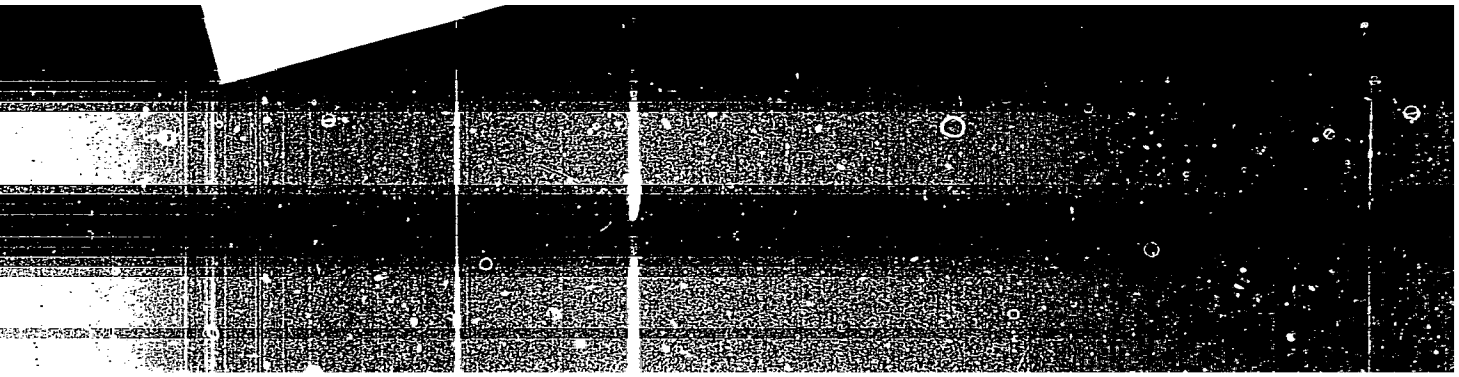
Vsesoyuznoye astronomo-geodezicheskoye obshchestvo

Astronomicheskiy kalendar; yezhegodnik. Peremennaya chast'; 1959
(Astronomical Calendar; Yearbook. Variable Part; 1959) Moscow,
Fizmatgiz, 1958. 370 p. 8,500 copies printed.

Ed.: I.Ye. Rakhlin; Tech. Ed.: S.N. Akhlamov; Editorial Board:
P.I. Bakulin (Resp. ed.), S.G. Kulagin, A.G. Masevich, and
P.P. Parenago.

PURPOSE: This astronomical calendar is intended for specialists in astronomy, astrophysics, and geophysics.

COVERAGE: The book is divided into two parts. The first, based on data taken from the USSR Astronomical Yearbook for 1959, consists of ephemerides and accompanying text, compiled and written by the following specialists: S.G. Kulagin and L.D. Kovbasyuk of the State Astronomical and Geodetical Society - notes on the ephemerides, the Sun and Moon; M.M. Dogayev GO (Moscow Branch of the All-Union Astronomical and ety) - text and maps of the visible trajectories of t and maps of eclipses, the physical coordinates



APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001032710013-3"

MASEVICH, A.G.

3(1) PHASE I BOOK EXPLOITATION SOV/1840

Vsesoyuznoye astronomo-geodezicheskoye obshchestvo

Astronomicheskiy kalendar; yezhegodnik. Peremennaya chast'; 1959 (Astronomical Calendar; Yearbook. Variable Part; 1959) Moscow, Fizmatgiz, 1958. 370 p. 8,500 copies printed.

Ed.: I.Ye. Rakhlin; Tech. Ed.: S.N. Akhlamov; Editorial Board: P.I. Bakulin (Resp. ed.), S.G. Kulagin, A.G. Masevich, and P.P. Parenago.

PURPOSE: This astronomical calendar is intended for specialists in astronomy, astrophysics, and geophysics.

COVERAGE: The book is divided into two parts. The first, based on data taken from the USSR Astronomical Yearbook for 1959, consists of ephemerides and accompanying text, compiled and written by the following specialists: S.G. Kulagin and L.D. Kovbasyuk of the GAGO (State Astronomical and Geodetical Society) - notes on ephemerides, the ephemerides of the Sun and Moon; M.M. Dogayev of the MOVAGO (Moscow Branch of the All-Union Astronomical and Geodetic Society) - text and maps of the visible trajectories of the planets, text and maps of eclipses, the physical coordinates

Card 1/10

Astronomical Calendar; Yearbook. Variable Part; 1959 SOV/1840

of the Sun, Moon, Mars, and Jupiter, the satellites of Jupiter and Saturn; N.D. Rozenblyum (MOVAGO) - emphemerides and heliocentric longitudes of planets; I.F. Yegorchenko, A.A. Kaverin, T.G. Konstantinova, V.A. Kuklina, G.V. Kuklin, Z.G. Sazonova, L.I. Chernykh, and N.S. Chernykh - data on 144 points in the USSR for the full solar eclipse of October 2, 1959; Ye.G. Demidovich (GAGO) - occultation of the stars and planets by the Moon, observation of the Polar Star, computation of stellar coordinates; V.A. Bronshteyn (MOVAGO) - comets; N.S. Yakhontova - the lesser planets; and, N.B. Perova (MOVAGO) - variable stars. The second part, the Supplement, contains a review of the achievements in astronomy for the years 1956 and 1957, written by V.A. Bronshteyn, O.D. Dokuchayeva, L.A. Katasev, M.A. Klyakotko, P.P. Parenago, and I.S. Shcherbina-Samoylova under the editorship of A.G. Masevich, articles on artificial satellites, the danger in astronautics from meteors, the nature of galaxies, articles on scientific meetings held in the Soviet Union and abroad, and articles on the anniversaries of events in astronomy. The book is profusely illustrated with tables, maps, photographs, and diagrams. The Supplement includes some 125 Soviet references grouped according to subject matter and type of publication.

Card 2/10

Astronomical Calendar; Yearbook. Variable Part; 1959 SOV/1840

TABLE OF CONTENTS:

Card 3/10

PART II. SUPPLEMENTS

Astronomical Calendar; Yearbook. Variable Part; 1959 SOV/1840

Card 5/10

Card 6/10

maintains its own meteorological station, a Time Station which provides 17 time signals in 24 hours, a Solar Laboratory which conducts systematic studies of the Sun's chromospheric flares on the basis of spectroscopic and photometric observations (Yu.M. Slonim, Chief, and K.F. Kuleshova, Z.B. Korobova, and B.N. Tirnshteyn, staff members), and a network of meteorological and other research stations. Of particular interest is the Kitaba International Latitude Station imeni Ulugbek situated 3 km, from the town of Kitaba in the Kashka-Dar'inskaya oblast'. Administered by the Observatory since 1941, the Station has conducted regular observations since 1930. Its staff members include A.M. Kalmykov, Director, D.I. Kravtsev, scientist, and P.V. Shcheglov and V.S. Obraztsov, laboratory assistants. A zenith-telescope APM-2 was installed there in June 1958. In 1932 the Observatory came under the jurisdiction of the Committee on Science of the Central Executive Committee of the Uzbek SSR, since which time it has engaged in a program of research in exact time determination, solar activity, and meridian and photographic astronomy. It had been conducting regular observations of sun spots and solar protuberances since 1932. The Observatory's staff includes M.F. Bykov, who completed the work begun in 1945 of determining the direct ascension of weak stars by the absolute

method; Kh.R. Shakirova, B.V. Yasevich, and A. Kadyrov, who made thorough studies with two passage instruments of personal and instrument errors; V.P. Shcheglov, V.T. Beda, B.Zh. Bal'zhinova, B.V. Yasevich, N.A. Omelina, L.N. Koshkina, M.G. L'vova, and G.I. Kazakov, who, in cooperation with IGY program, engaged in daily determinations of time corrections on two passage instruments and in the reception of a large number of rhythmic signals, V.A. Mal'tsev and N.N. Sytinskaya - observation of meteors; A.A. Latypov, I.M. Ishchenko, and G. Kim - regular photographic observations of the Earth's artificial satellites; F.G. Ustimenko, Chief Mechanical Engineer, and Ye.P. Kolesnikova, Head Librarian. Some of the newer equipment possessed by the Observatory include: a passage instrument APM-10, new printing chromographs, radio reception and measurement apparatus, two sets of quartz clocks obtained in 1958, a normal astrograph, a meridian circle, a zenith-telescope APM-2 set up in 1957, a solar protuberance spectroscope (obtained 1932), a standard spectrohelioscope (obtained 1935), a

chromosphere-photosphere telescope, a celostat with a clock mechanism for spectrohelioscope, and a microphotometer MF-4. The Tashkent Astronomical Observatory (TAO) published its own Trudy, a Byulleten', and Circulars.

AVAILABLE: Library of Congress

Card 10/10

MM/ad
6-17-59

80794

3.2300 SOV/169-59-6-6375

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 6, pp 140 - 141 (USSR)

AUTHORS: Gindin, Ye.Z., Leykin, G.A., Lozinskiy, A.M., Masevich, A.G

TITLE: The Optical Observations of Artificial Earth Satellites

PERIODICAL: V sb.: Predvarit. itogi nauchn. issled. s pomoshch'yu pervykh sov. iskustv. sputnikov Zemli i raket, Moscow, AS USSR, 1958, pp 5 - 39 (Engl. Res.)

ABSTRACT: The Astronomicheskiy sovet Akademii nauk SSSR (Council of Astronomy of the USSR Academy of Sciences) was put in charge of organizing the optical observations of artificial earth satellites. Sixty-six visual stations and twenty-four photographic stations were established for observing the satellites. The visual observation stations began their activity at the time when the first Soviet satellite was launched, while photographic observations have been performed systematically since the beginning of 1958. The visual observation methods were determined by the task: they must establish the position of a satellite or

Card 1/6

The Optical Observations of Artificial Earth Satellites

the celestial sphere with an accuracy of 0.5 to 1° and the time within 0.5 to 1 sec, and must report the observation results to the computer center within the shortest time. Two "optical barriers", each consisting of about 30 telescopes, were established to facilitate the observation of satellites having a low brightness and moving on the sky with a velocity of 1° per 1 sec, if the orbit is known only approximately. The barriers are located on the meridian and along a vertical circle perpendicular to the visible orbit of the satellite. The sight lines of the telescopes are adjusted in such a way that each section of the optical barrier is covered twice. For determining the time of passage of a satellite with an accuracy exceeding 1 sec, the time signals and the signals given by the observer at the time when the satellite passed, are recorded on tape. After the termination of the observations, the tape recording is reproduced at a low speed and the precise moment of passage is determined by a chronoscope. The coordinates of the satellite are determined by the sidereal maps of A.A. Mikhaylov's atlas or of A. Bechvarzh's atlas. When observing satellites of low brightness (15 - 8 stellar magnitude) the AT-1 telescope is used, which is a small wide-angle telescope having a 50 mm objective lens and six-power magnification. The field of view is 11°

Card 2/6

80794
SOV/169-59-6-6375

The Optical Observations of Artificial Earth Satellites

The stations observing the satellites are provided with signals of the correct time by feeding to them second tone signals. On the basis of observation data, the computer center informs the stations on the coming passage of a satellite The station receives a coded telegram containing information on the time and altitude of a satellite's passage in the meridional plane and in the plane in which the nearest point of the orbit is located. Observations of artificial satellites are also performed on the territories of the Chinese People's Republic (KNR), the German Democratic Republic (GDR), Czechoslovakia, Poland, Hungary, Rumania, and Bulgaria, where 45 stations are in operation Further, observatories in England, Scotland, Ireland, the US and other countries were included in the visual and photographic observation system of the Soviet satellites. At some stations, besides the visual observations, the positions of the carrier rocket and the second Soviet satellite are determined photographically by "Zorkiy" cameras with "Yupiter 8" lenses. At the time of the satellites passage across the field of view of the camera, the shutter is opened for a brief time interval (2 - 5 sec). The begin and the end of the exposure are marked by a chronograph. It is possible to determine by phot-

Card 3/6

The Optical Observations of Artificial Earth Satellites

graphic observations the position of a satellite with an accuracy of 3' - 5' of arc. The Council of Astronomy discussed the problem of using light flashes of short duration on the object for a precise determination of a satellite's position. The position of a satellite may be determined with an accuracy of 2 - 3 sec of arc when using cameras with a long focal length (F = ~1 m) for photographing the satellite. Using the data of these observations for triangulation on the earth's surface, the distance between different points (especially between continents) and also the shape of the geoid may be determined with an accuracy of 10 m. However, the photography of satellites is made difficult by the following circumstances: 1) the observations are possible only at dusk; 2) cameras with a very great light power are required; 3) the setting of precise time marks is complicated. These difficulties can be overcome if the satellite is equipped with a light source producing brief flashes by which it may be photographed at night. It is expedient to provide series of flashes and not a continuous feed, taking into consideration that at least two or three flashes must arrive in the field of view of the instrument. In this way it is possible to determine not only the position but also the angular velocity of a satellite. Obviously,

The Optical Observations of Artificial Earth Satellites

a pulse gas discharge lamp should be used as a light source, whose light output reaches 60 lm/w. The brightness of a satellite depends on the following reasons: 1) changes in the satellite's phases, i e in the configuration sun - satellite - observer; 2) changes in the distance to the observer; 3) light absorption in the section of its path from the satellite to the observer; 4) rotation and tumbling of a satellite, 5) changes in the state of the satellite's surface. The determination of the period of rotation (tumbling) of the satellite's body and changes of this period in time are of the greatest interest. Another important problem is the investigation of the dependence of the brightness and color of a satellite on the state of the earth's atmosphere. Finally, the third problem is the change of the state of the satellite's surface under the influence of the atmosphere and extraterrestrial agents. For solving the aforementioned problems a precise quantitative determination of brightness changes of a satellite and observations over a possibly great section of its trajectory are necessary. Presently, two methods are used for measuring a satellite's brightness. The first method consists in a

80794
SOV/169-59-6-6375

The Optical Observations of Artificial Earth Satellites

comparison of the brightness of the satellite's trail with the brightness of the trails of neighboring stars on a photography obtained by a stationary camera. The second method consists in a visual comparison of the satellite's brightness with the brightness of stars located along its path. Both methods are used at Soviet observation stations.

L.V. Terent'yeva

Card 6/6

LOZINSKIY, A.M.; MASEVICH, A.G.

Optical observations of artificial earth satellites in the U.S.S.R.
Mezhdunar. geofiz. god no.5:23-28 '58. (MIRA 11:10)
(Artificial satellites)

AUTHOR: Masevich, [illegible]

TITLE: An Important Contribution to the Development of [illegible] Science (Krupnyy vklad v razvitiye [illegible]) The Xth International [illegible] dunarodnyy s"yezd astronomov

PERIODICAL: Priroda, 19[illegible], Nr 1[illegible], pp [illegible]

ABSTRACT: The Tenth International [illegible] 21 August 19[illegible] in Moscow was attended by over [illegible] and 300 Soviet participants and guests from [illegible]. The Congress was opened by Professor [illegible]. The participants in the Congress were welcomed by [illegible] President of the [illegible] Council of [illegible] who pointed out the great achievements of [illegible] and stated that the Soviet government [illegible] importance of international scientific [illegible] was supported by the President of the [illegible] of the Congress, [illegible] President of the [illegible] spoke. The main themes concerned [illegible] the origin of the chemical elements, [illegible]

Card 1/4

An Important Contribution [illegible]
Xth International Congress of [illegible]

of the earth and the atom, frequent statements appeared [illegible] observations by means of balloons, rockets and artificial satellites, the sun and its influence upon the earth, the origin of the solar system, comets and meteorites. Another new theory on the origin of the chemical elements in nature, put by several American scientists, was mentioned by the Soviet physicist Academician [illegible]. This hypothesis presupposed the existence of a huge number of "dead" stars in the universe, which [illegible] confirmed by astronomical observations. According to it, lighter nuclei can be formed [illegible] in the so-called active zones which [illegible] able to accelerate the smallest particles [illegible] has been supported by observations [illegible] obtained in the Krymskaya astrophysical observatory [illegible] It is possible that [illegible] explosions occurring on the [illegible]

Card 2/4 The presence [illegible]

An Important Contribution to the [illegible]
Xth International Congress of [illegible]stronomers

atmospheres of certain stars [illegible]
Yel'dovich's suggestion [illegible]
has analyzed over [illegible]
geographical pole [illegible]
part of the earth [illegible]
scientists [illegible]
of the study of cosmic [illegible]
second and third spirals [illegible]
magnetic field of the sun were carried out [illegible]
Leverov, by means of the [illegible]
Astrophysical Observatory [illegible]
Soviet and Czech astronomers [illegible]
connection between solar activity and [illegible]
processes on earth. Thus the highest level of the annual
sea coincides with the secular minimum of solar activity.
The results of the international study of the variable stars
have been collected, arranged and published in the
During the Congress, the second edition of [illegible]
containing the description of [illegible]

Card 3/4

An Important Contribution to the [illegible]
Xth International Congress of [illegible]s.

Five numbers of the Congress proceedings [illegible] languages were published at this time. [illegible] visited scientific institutions in Moscow and [illegible] astronomical observatories in the Crimea, [illegible] and Uzbekistan.
There are 1 photos and 1 graph.

Card 4/4

AUTHOR: Massevich, A. G., Deput Chairman of the Astronomical Council AS USSR

TITLE: A New Efficacious Instrument for the **Knowledge of the Universe** (Novoye effektivnoye orudiye poznaniya vselennoy).

PERIODICAL: Vestnik AN SSSR, 1958, Vol. 28, Nr 1, pp. 8-12 (USSR)

ABSTRACT: The first earth satellite was of spherical shape and had a diameter of 58 cm and a weight of 83,6 kg. It was launched on October 4, 1957 and disappeared on January 4, 1958. The greatest height of its orbit was 900 km. The second earth satellite forms the last rocket step and weights more than 1/2 ton. The greatest height of its orbit is 1700 km. The orbits of the earth satellite have approximately the form of an ellipse, one of the foci of which is in the center of the earth. The plane of both orbits is inclined towards the equatorial plane at an angle of 65°. Because of the rotation of the earth, the earth satellite in each successive revolution passes a domain which is located approximately by 1000 to 2000 km more west than the preceding one, in dependence of the degree of latitude.

Card 1/3

A New Efficacious Instrument f r the **Knowledge of the Universe**

20-1-2 39

The period of a rotation of the first earth satellite at first amounted to 96,2 minutes and that of the second to 103,7 minutes. The earth satellites are visible only at dusk without the help of a telescope etc. For the purpose of optical observation of the artificial earth satellites, the Astronomical Council AN USSR organized 66 special stations at the Physical-Mathematical Faculties of universities and pedagogic institutes. A special small-sized telescope AT-1 was developed and produced, of which each station received 20-25; furthermore, star charts, stop watches, and a special device for recording observed times and the reception of exact time signals were provided. The organization for observation is described in detail, in which connection also the photographic method is mentioned. On the basis of deviations and modifications of the satellite orbit conclusions may be drawn concerning the modification of the force of gravity at various points of the earth. In this manner the distribution of the mass of the earth can be ascertained, which is not possible in a thorough manner by any other method. The artificial earth satellites are

Card 2/3

A New Efficacious Instrument for th **Knowledge of the Universe** 20-1-3/39

flying laboratories and make direct observations of the ionosphere of the upper atmospheric strata, of shortwave-solar radiation, possible, which is impossible to be carried out from the earth. In this way also the primary cosmic rays can be investigated. By taking with it a living being (dog) the second artificial earth satellite made it possible to carry out medical and biological investigations, the results of which will contribute greatly towards making the flight of human beings into cosmic space without danger possible. In this way the most important problems of astro- and geophysics can be investigated and studied, which is impossible on earth.

ASSOCIATION: Astronomical Council AN USSR (Astronomicheskiy sovet Akademii nauk SSSR).

AVAILABLE: Library of Congress

Card 3/3 1. Satellites-Nomenclature 2. Satellites-Motion 3. Satellites-Observation

3(1)
AUTHOR: ~~Masevich, A.G.~~ SOV/33-35-2-16/21

TITLE: On Some Peculiar Stars Below the Main Sequence of the H-R Diagram (O nekotorykh pekuliarnykh zvezdakh, nakhodyashchikhsya pod glavnoy posledovatel'nost'yu diagrammy Ressella)

PERIODICAL: Astronomicheskiy zhurnal, 1958, Vol 35, Nr 2, pp 292-294 (USSR)

ABSTRACT: According to the proposal of P.P.Parenago the author considers four stars (λBoo, 29 Cyg, γAqr, 2 And) with peculiar spectra which lie below the main sequence of the H-R diagram. There seems to be no reason for taking these stars as representatives of population II. Their present position on the H-R diagram can be explained if they are considered as initially main sequence stars ($1\odot < m < 2\odot$, $0.8 < X < 0.9$, $0.01 < Z < 0.1$) which evolved off the main sequence as a result of an evolution with constant mass and complete mixing till a stage corresponding to X-0.5 (fig 1). The time of such an evolution is about $3 \cdot 10^9 < t < 8 \cdot 10^9$ years.
There are 2 tables, 1 figure, and 5 references, 3 of which are Soviet, and 2 American.

ASSOCIATION: Gosudarstvennyy astronomicheskiy institut imeni P.K.Shternberga (State Astronomical Institute imeni P.K.Shternberg)

SUBMITTED: January 26, 1958

Card 1/1

3(1)

AUTHOR: Masevich, A. SOV/33-35-6-17/18

TITLE: The 10-th International Astronomical Congress in Moscow

PERIODICAL: Astronomicheskiy zhurnal,1958,Vol 35,Nr 6,pp 941-956 (USSR)

ABSTRACT: The paper contains a report on the Astronomical Congress which took place from August 12 - 21,1958 in Moscow. There were 1209 participators from 35 countries. The Soviet delegation consisted of 411 scientists, from the USA there participated 225, from France 103, from Germany 73, and from England 63 scientists etc.

The opening session was addressed by A.I. Kosygin, Vice-President of the Council of Ministers of the SU by A. A. Mikhaylov, President of the Astronomical Council of the Academy of Sciences of the USSR. Furthermore, A.V.Topchiyev, Vice-President of the Academy of Sciences, and V.A. Ambartsumyan, President of the Organization Committee of the Congress, also spoke.

A journal of the congress with the title "Kosmos" was published.

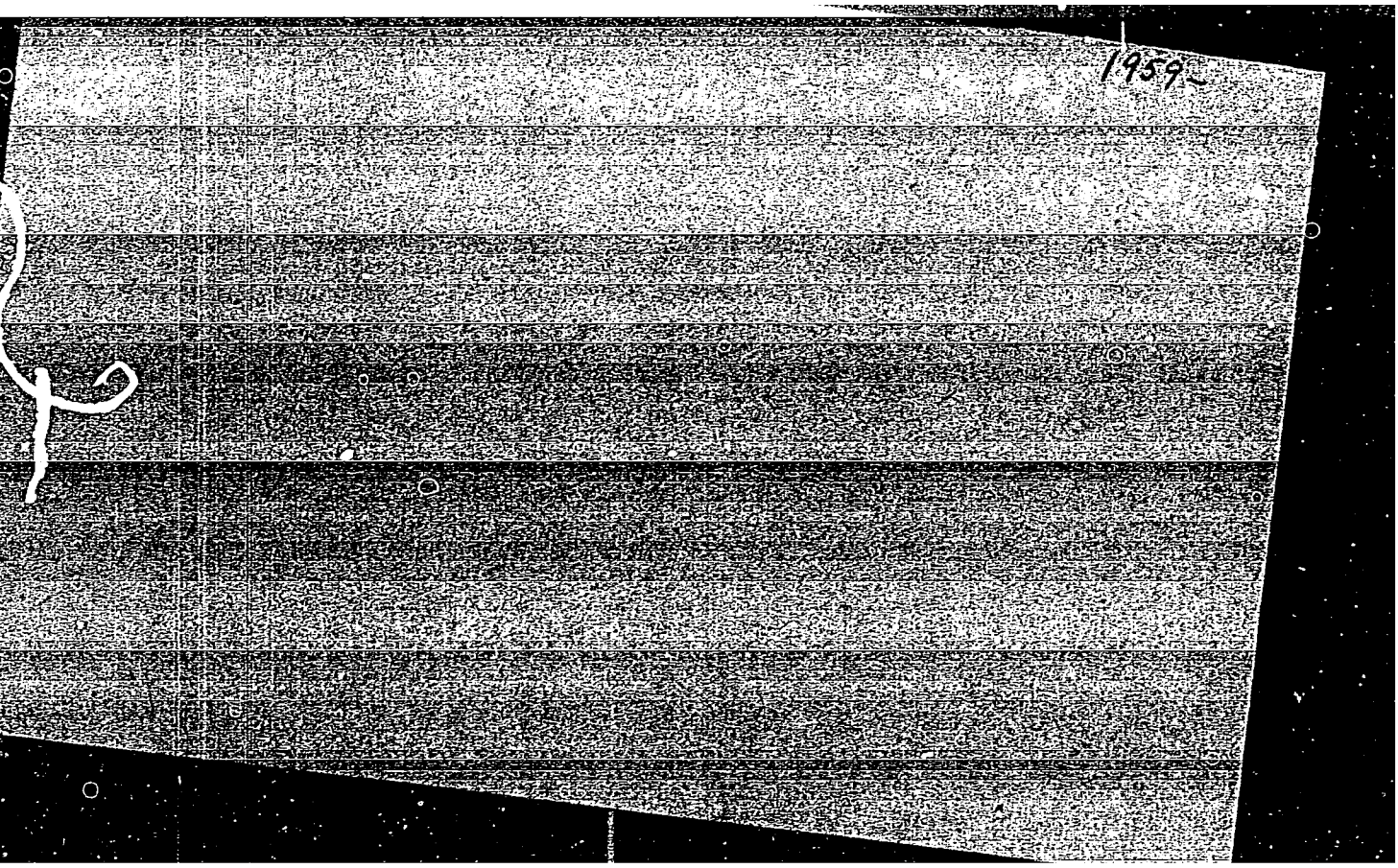
The following films were shown : 1. "The sun in action",USA,

Card 1/2

subtitles in Russian by S. Gaposhkin. 2. "Soviet observatories" by B.A. Vorontsov - Vel'yaminov etc. The following Soviet scientists gave lectures : P.P. Parenago, I.M. Kopylov, P.N. Kholopov, K.A. Barkhatova, V.A. Ambartsumyan, A.G. Masevich, V.A. Krat, E.R. Mustel', V.G. Fesenkov, G.M. Idlis, Ya.I. Fedorov, A.A. Nemiro, N.N. Pavlov, D.A. Frank - Kamenetskiy, P.E. Nemirovskiy, B.A. Tverskiy, R.Z. Sagdeyev, A.B. Severnyy, S.N. Vernov, A.E. Chudakov, T.N. Nazarova, V.I. Krassovskiy, Ya.L. Al'pert, L.A. Zhekulin, A.N. Kazantsev, V.P. Tsesevich, Ye. Pavlovskaya, Yu. Pskovskiy, S.A. Zhevakin, G.A. Idlis, O.M. Mel'nikov, A.P. Vinogradov, A.A. Yavnel', L.G. Kvash, Ye.L. Ruskol, A.I. Lebedinskiy, B.Yu. Levin, V.S. Safronov, S.K. Vsekhsvyatskiy, K.A. Shteyns, V.I. Cherednichenko, I.S. Astapovich, A.L. Zel'manov, A. Masevich, P.V. Shcheglov, V.B. Nikonov, M.S. Zverev, Ye.P. Fedorov, Ye.K. Kharadze, G.D. Mamedbeyli, A.N. Deych, and M.S. Eygenson.

SUBMITTED: October 3, 1958

Card 2/2



PHASE I BOOK EXPLOITATION SOV/3651

Vsesoyuznoye astronomo-geodezicheskoye obshchestvo

Astronomicheskiy kalendar' 1960 (Astronomical Calendar, 1960) Moscow, Fizmatgiz, 1959. 351 p. (Series: Its: Yezhegodnik; peremennaya chast', vyp. 63) 7,200 copies printed.

Ed.: I.Ye. Rakhlin; Tech. Ed.: S.N. Akhlamov; Editorial Board: P.I. Bakulin (Resp. Ed.), N.M. Dagayev, S.G. Kulagin, A.G. Masevich, P.P. Parenago.

PURPOSE: The book is intended for astronomers and geophysicists and physicists interested in astronomical phenomena.

COVERAGE: This yearbook on astronomy was compiled by a number of Soviet scientists specializing in several different branches of astronomy. The following persons participated in the work: L.D. Kovbasyuk, who wrote the chapters on ephemerides of the Sun and Moon; N.M. Dagayev, the chapters on planets, eclipses, physical coordinates of the Sun, Moon, Mars, and Jupiter, and the satellites of Jupiter and Saturn; V.S. Lazarevskiy, the chapters on ephemerides and heliocentric longitudes of planets; Ye.G. Demidov, the chapters on occultation of stars and planets by the Moon, observations of Polaris and computation of coordinates of stars; V.A. Bronshten, the chapters on comets; N.S. Yakhontova, sections on minor planets; and N.B. Perova, the chapters on variable stars. The appendixes contain articles on recent developments and events in astronomy such as the launching of the first Soviet space rocket, the 10th Congress of the International Astronomical Association held in Moscow in August 1958, developments in astronomy in 1958 during the IGY. There are 385 references, all Soviet.

AVAILABLE: Library of Congress

7

Masevich A.G.

MASEVICH, Alla G.

"Model of the Sun."

report to be submitted for the 9th Intl. Symposium, Belgian Inst. of Astrophysics, Liege, Belgium, 6-8 July 1959.

66609

~~3(1), 29(0)~~ 3 2100

AUTHOR: Masevich, A. G., Doctor of Physical and Mathematical Sciences SOV/30-59-5-21/43

TITLE: Astronomical Observations of Artificial Earth Satellites (Astronomicheskiye nablyudeniya iskusstvennykh sputnikov Zemli).

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 5, pp 85-94 (USSR)

ABSTRACT: Observations are carried out in the USSR by means of the telescope AT-1 the apparatus of which was recently improved by B. Ye. Tumanyan (Yerevan). Several stations use theodolites fitted with telescopes AT-1 (Khabarovsk, Kyzl-Orda, Tartu). On this basis J. E. Einasto (Tartu) constructed an experimental automatic recording theodolite. D. Ye. Schchegolev investigated at the station of the Pulkovo observatory the methods of observing artificial earth satellites. Many stations photograph the earth satellites with the narrow film camera of the "Kiyev" and "Zorkiy" type. In the South-Sakhalin station K. N. Kan used for this purpose the telescope AT-1 as a sighting telescope. The station of the Vologda Pedagogical Institute (A. P. Poletayev) achieved considerable success in this field. In the USSR the artificial earth satellites are taken with wide-angle aerial photography cameras NAFA-3s/25

Card 1/3

with "Uran 9" lenses. A great part of the stations determi-s the position of the earth satellites by means of the metho' of A. N. Deych and A. A. Kiselev (Pulkovo). In order to secu- still more accurate coordination of the earth satellites large astronomical telescopes are provided with a device -h permits an exact recording of the time of exposure; this -ce was for the first time constructed in the Astrofizicheskiy institut Akademii nauk Kazakhskoy SSR (Astrophysics Insti-- of the Academy of Sciences of the Kazakh SSR). In this connection the author of the present paper refers to the paper by D. A. Rozhkovskiy in this periodical (foot note 2). The Astronomical Observatory imeni Engel'gardt near Kazan' constructed a special plate holder for telescopes which permits the passage through certain points of the photo plate to be recorded with respect to time. Ye. Ya. Bugoslavskaya works out a similar method of photographing earth satellites in the Astronomical Institute imeni Shternberg in Moscow. L. A. Panaytov of the Astronomical Main Observatory (Pulkovo) built a cinematographic camera. M. K. Abele, scientific collaborator of the Riga station suggested an interesting method. The Odessa Observatory evaluated results of observations made at different

points of the surface of the earth. The author of the present paper mentions further the papers by V. P. Tsesevich (Odessa) and M. S. Zverev as well as M. I. Yesipova (Pulkovo). The results of observations of the motion of artificial earth satellites show how much the scientists all over the world endeavor to collaborate objectively. An insert shows photographs of the three Soviet artificial earth satellites in the years 1957 and 1958. All these observations are important because the orbits of the earth satellites are still within the earth's atmosphere and because their deviations from the orbits computed according to the laws of celestial mechanics permit conclusions as to the composition of atmosphere. There are 13 figures and 2 references, 1 of which is Soviet.

3(1)

AUTHOR: Masevich, A. G., Doctor of Physical and [illegible] Sciences, Deputy Chairman of the Astronomic Council AS USSR

TITLE: New Cosmic Experiments Are Planned

PERIODICAL: Tekhnika molodezhi, 1959, Nr 11, p 9 (USSR)

ABSTRACT: This is a short consideration of the purpose and use of advance into cosmos. The scientific research flights made in recent years converted astronomy from a deliberative into an experimental science. The possibility of observing celestial bodies outside the terrestrial atmosphere is of utmost importance. Astronomers obtained many new data on the Moon, also by taking photographs of the Far Side. Further possibilites will include the experimental investigation of Mars, Venus and other planets in the solar system. It is hoped that the desire of astronomers to establish an observatory on the Moon will be realized. Many new discoveries can be made with a telescope in the cosmic space. The investigation of ultraviolet rays absorbed by the terrestrial atmosphere might give valuable hints as to processes taking place on various celestial bodies.

Card 1/1

ASSOCIATION: Astronomicheskiy sovet AN SSSR (Astronomic Council, AS USSR)

3(1)
AUTHOR: Masevich,A.G. SOV/33-36-3-29/29

TITLE: 101st Congress of the American Astronomical Society

PERIODICAL: Astronomicheskiy zhurnal,1959,Vol 36,Nr 3,pp 557-560 (USSR)

ABSTRACT: This is a report on the annual congress of the American Astronomical Society. December 29-30, 1958 in Florida. It contains a short index of the lectures and a photo of the participators of the congress.
There is 1 figure.

SUBMITTED: March 18, 1959

Card 1/1

MASEVICH, Alla Genrikhovna, doktor fiz.-mat.nauk

Secrets of the moon. Nauka i zhizn' 27 no.12:27 D '59.
(MIRA 13:3)

1. Zamestitel' predsedatelya Astronomicheskogo soveta AN SSSR.
(Moon--Surface)

DYBOVSKAYA, Irma Konstantinovna, dotsent, kand.filol.nauk; PROMTOVA, Irina Andreyevna; SUVOROVA, Vera Vasil'yevna; CHESKIS, Zoya Borisovna; DEYEV, G.N., red.; MASEVICH, A.G., doktor fiz.-matem.nauk, red.; PARIYSKIY, N.N., kand.fiz.-matem.nauk, red.; TANTSOVA, N.N., kand. tekhn.nauk, red.; TERENT'YEVA, L.V., red.; TYAGUNOVA, Z.I., red.; KRYUCHKOVA, V.N., tekhn.red.

[French-Russian geophysical dictionary] Frantsuzsko-russkii geofizicheskii slovar'. Pod red. G.N.Deeva i dr. Moskva, Glav.redaktsiia inostr.nauchno-tekhn.slovarei Fizmatgiza, 1960. 374 p. (MIRA 13:9)
(Geophysics--Dictionaries)
(French language--Dictionaries--Russian language)
(Russian language--Dictionaries--French language)

MASEVICH, A.G.

PHASE I BOOK EXPLOITATION SOV/4946

Mikhaylov, A. A., ed.

Stantsii v kosmose; sbornik statey (Space Stations; Collection of Articles) Moscow, Izd-vo AN SSSR, 1960. 444 p. 25,000 copies printed. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya Seriya)

Resp. Ed.: A. A. Mikhaylov; Compiler: V. V. Fedorov; Ed. of Publishing House: Ye. M. Klyaus; Tech. Ed.: I. D. Novichkova.

PURPOSE: This book is intended both for the space specialist and the average reader interested in space problems.

COVERAGE: The book contains 73 short articles by various Soviet authors on problems connected with space travel and the launching of artificial earth satellites and space rockets. Some possibilities of future developments are also discussed. The articles were published in the period of 1957-1960. No personalities are mentioned. There are no references.

KHOLLICHER, Val'ter [Hollitscher, Walter]; AKCHURIN, I.A. [translator]; ARKHANGEL'SKIY, N.S. [translator]; MOCHALIN, D.N. [translator]; OMEL'YANOVSKIY, M.E., akademik, red.; OPARIN, A.I., akademik, red.; MASHKVICH, A.G., doktor fiziko-matem.nauk, red.; OVCHINNIKOV, N.F., kand.filosof.nauk, red.; TYURYUKANOV, A.N., kand.biolog.nauk, red.; GAL'PERIN, P.Ya., dotsent, red.; URYSON, M.I., kand.biolog.nauk, red.; MAKAROV, A.A., red.izd-va; ZOTOVA, N.V., tekhn.red.

[Nature in the scientific picture of the world] Priroda v nauchnoi kartine mira. Obshchaia red. i vstupitel'naia stat'ia M.E. Omel'ianovskogo. Moskva, Izd-vo inostr.lit-ry, 1960. 469 p. (MIRA 14:3)

1. AN USSR (for Omel'yanovskiy).
(Science--Philosophy)

GINDIN, Ye.Z.; LEYKIN, G.A.; LOZINSKIY, A.M.; LUR'YE, M.A.; MASEVICH, A.G.; SEVERNAYA, O.A.; SENTSOVA, Yu.Ye.; SLOVOKHOTOVA, N.P.; TOL'SKAYA, V.A.; TSITOVICH, V.V.

Brief report of the Astronomical Council of the Academy of Sciences of the U.S.S.R. on visual and photographic observations of artifical earth satellites in 1957-1959. Biul. sta. opt. nabl. isk. sput. Zem. no. 6:1-33 '60. (MIRA 14:2)
(Artificial satellites--Tracking)

FEDOROV, Ye.; MASEVICH, A., doktor fiz.-mat.nauk

Steps toward outer space. Tekh.mol. 28 no.6:8-9 '60.
(MIRA 13:7)

1. Chlen-korrespondent AN SSSR (for Fedorov). 2. Zamestitel' predsedatelya Astronomicheskogo soveta AN SSSR (for Masevich).
(Space ships)

307/[illegible]

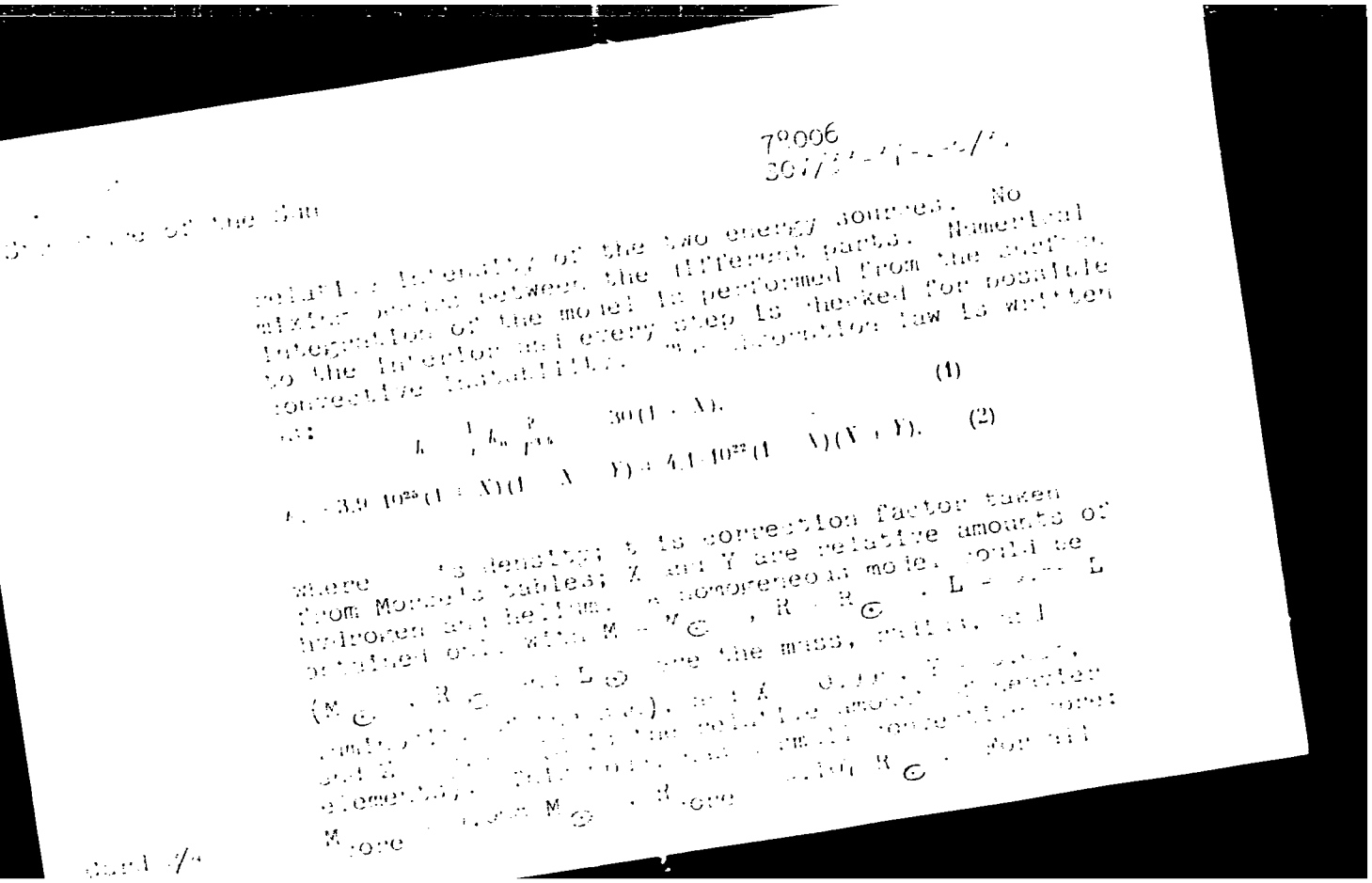
AUTHORS: Ma[illegible]evi[illegible], A. G., Vol[illegible], T. G.

TITLE: Structure of the S[illegible]

PERIODICAL: Astronomi[illegible] [illegible], [illegible], Vol [illegible], Nr 1, pp [illegible]2-50 (USSR)

ABSTRACT: [illegible] an electronic computer, the authors construct a new model of the [illegible]. It consists of three parts: (1) [illegible] outer envelope, with no energy source in it and with molecular weight μ_1 corresponding to initial chemical composition of the model; (2) an intermediate layer, where the proton-proton reaction operates but the carbon cycle is a negligible source of energy; here, the ratio of molecular weights μ_2 / μ_1 is determined by the [illegible] of the proton-proton reaction and changes with time; (3) a central core, where both the proton-proton and the carbon cycle operate, and μ / μ and μ / μ are determined by the

Card 1/[illegible]



79006

(1)

(2)

Structure of the Sun

other parts radiative equilibrium remains stable. The central temperature and density are: T_c = 12.07 × × 10^6 °K and ρ [illegible] g/cm³. The upper boundary of the the intermediate zone is at r = 0.[illegible] $R_\odot$, and the energy source of the model is the proton-proton reaction; even inside the core the contribution of the carbon cycle is moderate. The authors also carried out calculations for the chemical composition: X = 0.74, Y = 0.25, and Z = 0.0075, assumed by P. Naur, and they obtained results similar to his. A table gives a summary of 15 different models computed by various authors from 1947 to 1959 which differ in assumed laws of absorption and in chosen chemical composition. There are 2 figures; 4 tables; and 21 references; 5 Soviet, 1 Chinese, 2 German, 13 U.S. The most recent U.S. references are: M. Schwarzschild, R. Howard, R. Harm, Astrophys. J. 125, 233, 1957; O. Abell, Astrophys. J., 121, 430, 1955; I. Epstein, R. Motz, Astrophys. J., 117, 311, 1953; Ph. Morse, Astrophys. J., 92, 27, 1940; R. L. Sears, Astron. J., 63, 53, 1958; Astrophys. J.,

Card 3/4

. Structure of the Sun

SOV/

LD, 489, 1957.

ASSOCIATION: Sternberg State Astronomical Institute and Computing Center of Moscow State University (Gos. astronomicheskiy In-t imeni P. K. Shternberga, Vychislitel'nyy tsentr MGU)

SUBMITTED: September 5, 1957

Card 1/1

KULAGIN, S.G.; KOVBASYUK, L.D.; DAGAYEV, M.M.; LAZAREVSKIY, V.S.; DEMIDOVICH, Ye.G.; BRONSHTEN, V.A.; YAKHONTOVA, N.S.(Leningrad); KUROCHKIN, N.Ye.; DOKUCHAYEVA, O.D.; SHCHERBINA-SAMOYLOVA, I.S.; MASEVICH, A.G.; LIPSKIY, Yu.N.; MARTYNOV, D.Ya.; ARSENT'YEV, V.V.; MOROZ, V.I.; MASEVICH, A.G.; PEREL', Yu.G.; BAKULIN, P.I., otv. red.; KULIKOV, G.S., red.; AKHLAMOV, S.N., tekhn. red.

[Astronomical calendar; yearbook.Variable part, 1962] Astronomicheskii kalendar'; ezhegodnik. Peremennaia chast', 1962. Red. kollegiia: P.I.Bakulin i dr. Moskva, Gos.izd-vo fiziko-matem. lit-ry, 1961. 259 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo, no.65) (MIRA 14:12)

1. Gosudarstvennoye astronomo-geodezicheskoye obshchestvo (for Kalugin, Kovbasyuk, Lazarevskiy, Demidovich). 2. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva (for Dagayev, Bronshten, Kurochkin).
(Astronomy—Yearbooks)

MASEVICH, A. G. (Prof.)

"Optical and Radio Tracking of Satellites."

report presented at the Intl. Symposium on Space Age Astronomy, Pasadena, California, 7-9 Aug 61.

Vice Pres, Astronomical Council, Acad. Sci. USSR

S/030/61/000/004/009/015
B105/B206

AUTHOR: Masevich, A. G., Doctor of Physical and Mathematical Sciences

TITLE: Three-year experience in the observation of artificial earth satellites

PERIODICAL: Vestnik Akademii nauk SSSR, no. 4, 1961, 94-98

TEXT: The international observation of artificial earth satellites is described. In 1957, a special "service for satellites" was established within the program of the International Geophysical Year, consisting of a network of observation stations and beginning to operate after the launching of the first Soviet satellite on October 4, 1957. There are 96 such stations in the USSR, 110 in the USA, 80 in Japan, 24 in China, 9 in Poland, 7 in East Germany, 5 in Czechoslovakia, 2 each in Rumania and Yugoslavia and 1 each in Bulgaria, Mongolia, and Vietnam. From January 20-25, 1961, a Conference was held at the Dom druzhby s narodami zarubezhnykh stran (House of Friendship With Foreign Peoples) which was convened by the Astronomicheskiy sovet Akademii nauk SSSR (Astronomical Council of the AS USSR). This Conference was also attended by delegates from Bulgaria, Hungary, East Germany, China, Mongolia, Poland, and

S/030/61/000/004/003/015
B105/B206

Three-year experience ...

Czechoslovakia. Observations of Soviet satellites are reported to the USSR by a number of socialist and foreign stations and observatories. The method of visual observation is nearly the same in all stations. Telescopes of the types AT-1 and TZK (TZK) are mainly used. The method of visual and photographic observation as well as the possibilities of defining the data were discussed at the Conference. Reports were also made on new and perfected devices. The study of the gravitational field of the earth by means of analyzing the movements of the third Soviet satellite, conducted by I. D. Zhongolovich, which he concluded at the Institut teoreticheskoy astronomii Akademii nauk SSSR (Institute of Theoretical Astronomy AS USSR) is mentioned as an example. Investigation of the movement of artificial satellites led to the development of a new branch of gravimetry, the astronomicheskaya gravimetriya (Astronomical gravimetry). Its task consists in investigating the parameters of the potential of the gravitational force and in establishing a precise theory of the motion of cosmic bodies close to the earth. A novyy otdel prikladnoy nebesnoy mekhaniki (Department of Applied Celestial Mechanics), which is to evaluate the observations of the satellites and to calculate their orbits, was established at the Institute. The evaluation is done on the electronic computer of the type БЭСМ (BESM) of the Vychislitel'nyy tsentr Akademii nauk SSSR (Computer Center of the Academy of Sciences

Card 2/4

S/030/61/000/004/009/015
B105/B206

USSR), air density in great altitudes being defined and the ellipticity of the earth determined. Accurate photographic observations must be consulted for the determination of important parameters. L. Sekhnal investigated the effect of the pressure of the earth on the motion of near satellites at the Astronomical Institute in Ondrzheyov (Czechoslovakia). At the Potsdam Observatory, East Germany, V. Günzel-Lingner made an experiment using a big long-focus double astrograph for very accurate observations of satellites. He also elaborated a simple method for an observation station to explain ephemerides. M. K. Abele of the Riga Station and L. A. Panayotov of the Pulkovo Observatory designed special cameras for photographing weakly visible satellites. I. Almar, Budapest Observatory, Hungary, developed the "Navikord" computer which simplifies the evaluation of observations. The Polish National Committee for International Geophysical Collaboration developed a special field of research, which directly evaluates observation data of satellites. The observation results of the Soviet satellites by Soviet as well as foreign stations are regularly published in special bulletins by the Astronomical Council. Data of scientific research as well as descriptions of new devices and the perfection of the method are published in the "Byulleten' stantsiy opticheskogo nablyudeniya sputnikov" (Bulletin of the

Three-year experience ...

Optical-observation Stations for Sputniks), which is also published by the Astronomicheskiy sovet (Astronomical Council). Detailed recommendations regarding all problems dealt with were accepted by the Conference.

Card 4/4

MASEVICH, A.G., doktor fiz.-matem.nauk

Extragalactic astronomy and cosmology. Vest. AN SSSR 31 no.11: 106-109 N '61. (MIRA 14:11)

(Astronomy) (Cosmology)

MASEVICH, A.

Symposium "Astronomy of the Space Age." Astron.zhur. 38 no.6:
1129-1132 N-D '61. (MIRA 14:11)
(Astronomy--Congresses) (Space flight--Congresses)

MASEVICH, A.G.

Interpretation of the evolution of main-sequence stars. Soob. GAISH no.105:3-19 '61. (MIRA 14:8)
(Cosmogony) (Stars)

MASEVICH, A.G.

Evolution of main-sequence stars of early spectral classes. Soob. GAISH no.105:20-34 '61. (MIRA 14:8)
(Cosmogony) (Stars)

MASEVICH, A.G.

Nature of young stars reaching the main sequence. Soob.GAISH no.105:35-49 '61. (MIRA 14:8)
(Cosmogony) (Stars)

L 22131-65 EEO-2/EWA(1)/EWT(d)/FBD/FSF(h)/FSS-2/EWG(r)/EWT(1)/EWT(m)/FS(v)-3/EWP(w)/
EEC(k)-2/EWG(a)-2/FSI(v)/EWA(d)/EEO(t)/EWG(a)/EWP(k)/EWG(c)/EWA(h)/ES(b) Pd-4/Pe-5/
Pq-4/Pac-4/Pi-4/Pae-2/Pab/Pi-4 TT/DD/BW/EMB/GW

ACCESSION NR: AR5001308 S/0269/64/000/010/0003/0004

SOURCE: Ref. zh. Astronomiya. Otdel'nyy vypusk, Abs. 10.51.29

AUTHOR: Masevich, A. G.

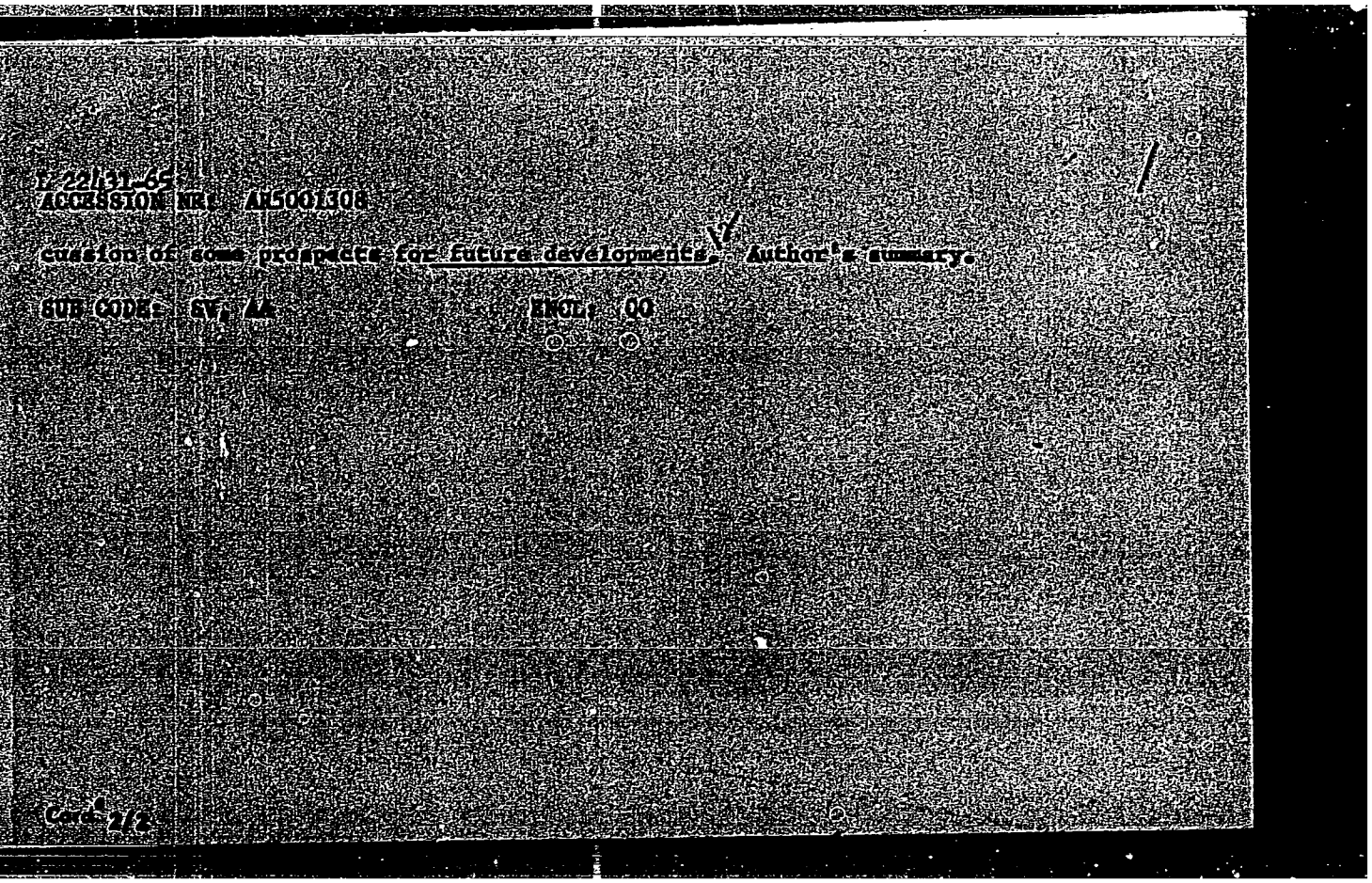
TITLE: Some results of space research in the Soviet Union

CITED SOURCE: Byul. st. optich. nablyudeniya iskusstv. sputnikov Zemli, spets. vyp. 1962, 5-13

TOPIC TAGS: space research, artificial earth satellite, space rocket, circumterrestrial space, moon, planet, planetary system, solar system, interplanetary space, space biology, space medicine

TRANSLATION: This is a review article. The author presents the results of scientific investigations made from 4 October 1957 through 4 October 1962 using Soviet artificial earth satellites and space rockets. There is a discussion of the principal directions being pursued in Soviet space research: 1) study of the properties of circumterrestrial space, 2) investigation of the moon and the space between the earth and moon, 3) investigation of the planets of the solar system and interplanetary space, 4) medical and biological experiments. There is also a dis-

Card 1/2



L 22431-65
ACCESSION NR: AR5001308

cussion of some prospects for future developments. Author's summary.

SUB CODE: GV, AA ENCL: 00

Card 2/2

MASEVICH, A.G., doktor fiz.-matemat.nauk

Advances in astronomy. General Assembly of the International astronomical Union. Priroda 51 no.1:78-88 Ja '62. (MIRA 15:1)
(astronomy--Congresses)

[illegible], A.D., doktor fiz.-matem.nauk

Mysteries of the universe are being unveiled. Priroda 51 (MIRA 15:9)
no.9:17-20 S '62.
(Astronautics)

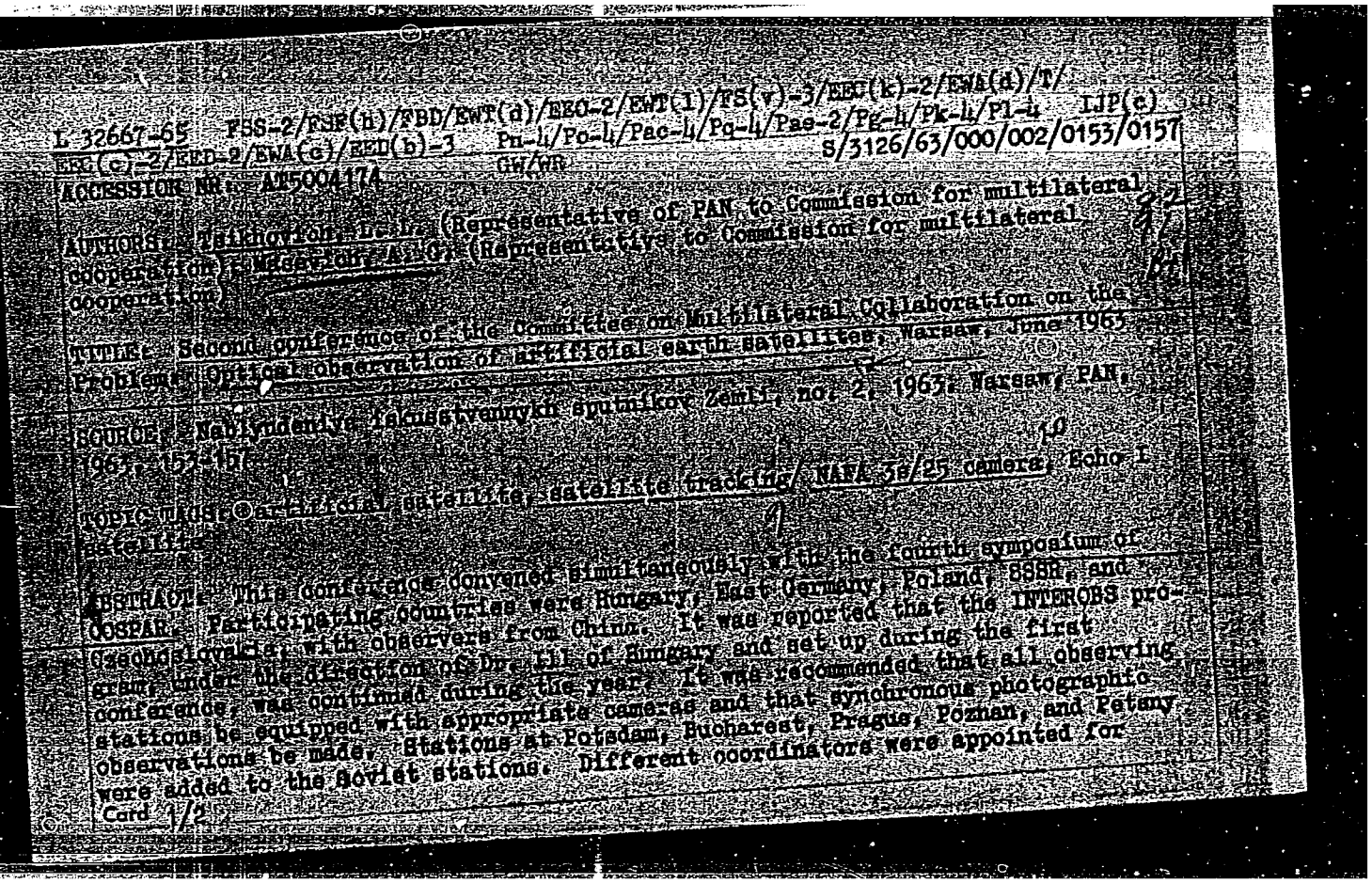
MASEVICH, A.G., doktor fiziko-matem. nauk, otv. red.; GUS'KOV, G.G., red.izd-va; YEGOROVA, N.F., tekhn. red.

[Origin of life in the universe] Vozniknovenie zhizni vo Vselennoi; sbornik dokladov. Moskva, 1963. 95 p. (MIRA 16:9)

1. Soveshchaniye Komissii po Kosmogonii Astronomicheskogo soveta AN SSSR. Moscow, 1962.
(Life on other planets) (Life—Origin) (Cosmogony)

BAKULIN, P.I., otv. red.; DAGAYEV, M.M., red.; KULAGIN, S.G., red.; KUROCHKIN, N.Ye., red.; MASEVICH, A.G., red.; RAKHLIN, I.Ye., red.; SHKLYAR, S.Ya., tekhn. red.

[Astronomical calendar: Yearbook. varying part, 1964]Astronomicheskii kalendar'.Ezhegodnik, peremennaia chast',1964.Red.koll. P.I.Bakulin i dr. Moskva,Fizmatgiz,1963. 279 p. (Vsesoiuznoe astronomo-geodezicheskoe obshchestvo, no.67)
(MIRA 17:1)



L 32667-65 FSS-2/FSR(h)/FBD/EWT(d)/EEC-2/EWT(1)/FS(v)-3/EEC(k)-2/EWA(d)/T/
EEC(c)-2/EEP-2/EWA(c)/EED(b)-3 Pu-4/Po-4/Pac-4/Pq-4/Pae-2/Pg-4/Pk-4/Pl-4 IJP(c)
ACCESSION NR: AT5004174 GW/WW S/3126/63/000/002/0153/0157

AUTHOR: Tikhonov, N. N. (Representative of PAN to Commission for multilateral cooperation); Wisniewski, A. (Representative to Commission for multilateral cooperation)

TITLE: Second conference of the Committee on Multilateral Collaboration on the problems of optical observation of artificial earth satellites, Warsaw, June 1963

SOURCE: Nablyudeniya iskusstvennykh sputnikov Zemli, no. 2, 1963, Warsaw, PAN, 1963, 153-157

TOPIC TAGS: artificial satellite, satellite tracking, NAFA 3s/25 camera, Echo I satellite

ABSTRACT: This conference convened simultaneously with the fourth symposium of COSPAR. Participating countries were Hungary, East Germany, Poland, USSR, and Czechoslovakia, with observers from China. It was reported that the INTEROBS program, under the direction of Dr. [illegible] of Hungary and set up during the first conference, was continued during the year. It was recommended that all observing stations be equipped with appropriate cameras and that synchronous photographic observations be made. Stations at Potsdam, Bucharest, Prague, Poznan, and Petany were added to the Soviet stations. Different coordinators were appointed for

Card 1/2